FCC PART 15, SUBPART C
ISEDC RSS-247, ISSUE 2, FEBRUARY 2017

TEST REPORT

For

The Detection Group, Inc.

4550 Kearny Villa Road, Suite 110
San Diego, CA, 92123 USA

FCC ID: 2AK4V-DT-450
IC: 22517-DT450

Report Type: Permissive Change Report	**Product Type:** Communication Module
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ACCREDITED
CERTIFICATE #3297.02

Note: This test report was prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. This test report **shall not** be used by the customer to claim product certification, approval, or endorsement by A2LA or any agency of the United States Government or any foreign government.

* This test report may contain data and test methods that are not covered by BACL's scope of accreditation as of the test report date shown above. These items are marked within the test report text with an asterisk "*"

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R2008142-DTS	Original Report	2020-12-11

1 General Description

1.1 Product Description for Equipment Under Test (EUT)

This test and measurement report was prepared on behalf of *The Detection Group, Inc.,* and their *product model: DT-450* (FCC: 2AK4V-DT-450, IC: 22517-DT450) in host model: *Smart Base Station,* as referred to as EUT in this report. The EUT is a communication module with 2.4 GHz Wi-Fi, Bluetooth BDR/EDR, and Bluetooth LE functions. Host product is a Gateway for hub products used for leak detection monitoring.

1.2 Mechanical Description of EUT

Length (mm)	Width (mm)	Height (mm)	Weight (g)
6.95	5.15	1.00	5

1.3 Objective

This report is prepared on behalf of *The Detection Group, Inc.,* in accordance with Part 2, Subpart J, and Part 15, Subparts B and C of the Federal Communication Commission's rules and ISEDC RSS-247 Issue 2 on February 2017.

The objective is to determine compliance with FCC Part 15.247and ISEDC RSS-247 rules for new enclosure and radio co-location with LTE radio module (FCC ID: RI7ME910C1NA, IC: 5131A-ME910C1NA), and 900 MHz radio (FCC ID: 2AK4V-DT-550, IC: 22517-DT550).

1.4 Related Submittal(s)/Grant(s)

Equipment class: DSS, FCC ID: 2AK4V-DT-450

1.5 Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices and FCC KDB 558074 D01 DTS Meas Guidance v04: Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247.

1.6 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Parameter	Measurement uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.57 dB
Power Spectral Density, conducted	±1.48dB
Unwanted Emissions, conducted	±1.57dB
All emissions, radiated	±4.0 dB
AC power line Conducted Emission	±2.0 dB
Temperature	±2 º C
Humidity	±5 %
DC and low frequency voltages	±1.0 %
Time	±2 %
Duty Cycle	±3 %

1.7 Test Facility Registrations

BACLs test facilities that are used to perform Radiated and Conducted Emissions tests are currently recognized by the Federal Communications Commission as Accredited with NIST Designation Number US1129.

BACL's test facilities that are used to perform Radiated and Conducted Emissions tests are currently registered with Industry Canada under Registration Numbers: 3062A-1, 3062A-2, and 3062A-3.

BACL is a Chinese Taipei Bureau of Standards Metrology and Inspection (BSMI) validated Conformity Assessment Body (CAB), under Appendix B, Phase I Procedures of the APEC Mutual Recognition Arrangement (MRA). BACL's BSMI Lab Code Number is: SL2-IN-E-1002R

BACL's test facilities that are used to perform AC Line Conducted Emissions, Telecommunications Line Conducted Emissions, Radiated Emissions from 30 MHz to 1 GHz, and Radiated Emissions from 1 GHz to 6 GHz are currently recognized as Accredited in accordance with the Voluntary Control Council for Interference [VCCI] Article 15 procedures under Registration Number A-0027.

1.8 Test Facility Accreditations

Bay Area Compliance Laboratories Corp. (BACL) is:

A- ***An independent, 3rd-Party, Commercial Test Laboratory accredited to ISO/IEC 17025:2005 by A2LA (Test Laboratory Accreditation Certificate Number 3297.02)*****,** in the fields of: Electromagnetic Compatibility and Telecommunications. Unless noted by an Asterisk (*) in the Compliance Matrix (See Section 3 of this Test Report), BACL's ISO/IEC 17025:2005 Scope of Accreditation includes all of the Test Method Standards and/or the Product Family Standards detailed in this Test Report..

BACL's ISO/IEC 17025:2005 Scope of Accreditation includes a comprehensive suite of EMC Emissions, EMC Immunity, Radio, RF Exposure, Safety and wireline Telecommunications test methods applicable to a wide range of product categories. These product categories include Central Office Telecommunications Equipment [including NEBS - Network Equipment Building Systems], Unlicensed and Licensed Wireless and RF devices,

Information Technology Equipment (ITE); Telecommunications Terminal Equipment (TTE); Medical Electrical Equipment; Industrial, Scientific and Medical Test Equipment; Professional Audio and Video Equipment; Industrial and Scientific Instruments and Laboratory Apparatus; Cable Distribution Systems, and Energy Efficient Lighting.

B- ***A Product Certification Body accredited to ISO/IEC 17065:2012 by A2LA (Product Certification Body Accreditation Certificate Number 3297.03)*** to certify

- For the USA (Federal Communications Commission):
  - 1- All Unlicensed radio frequency devices within FCC Scopes A1, A2, A3, and A4;
  - 2- All Licensed radio frequency devices within FCC Scopes B1, B2, B3, and B4;
  - 3- All Telephone Terminal Equipment within FCC Scope C.
- For the Canada (Industry Canada):
  - 1 All Scope 1-Licence-Exempt Radio Frequency Devices;
  - 2 All Scope 2-Licensed Personal Mobile Radio Services;
  - 3 All Scope 3-Licensed General Mobile & Fixed Radio Services;
  - 4 All Scope 4-Licensed Maritime & Aviation Radio Services;
  - 5 All Scope 5-Licensed Fixed Microwave Radio Services
  - 6 All Broadcasting Technical Standards (BETS) in the Category I Equipment Standards List.
- For Singapore (Info-Communications Development Authority (IDA)):
  - 1 All Line Terminal Equipment: All Technical Specifications for Line Terminal Equipment – Table 1 of IDA MRA Recognition Scheme: 2011, Annex 2
  - 2. All Radio-Communication Equipment: All Technical Specifications for Radio-Communication Equipment – Table 2 of IDA MRA Recognition Scheme: 2011, Annex 2
- For the Hong Kong Special Administrative Region:
  - 1 All Radio Equipment, per KHCA 10XX-series Specifications;
  - 2 All GMDSS Marine Radio Equipment, per HKCA 12XX-series Specifications;
  - 3 All Fixed Network Equipment, per HKCA 20XX-series Specifications.
- For Japan:
  - 1 MIC Telecommunication Business Law (Terminal Equipment):
    - All Scope A1 - Terminal Equipment for the Purpose of Calls;
    - All Scope A2 - Other Terminal Equipment
  - 2 Radio Law (Radio Equipment):
    - All Scope B1 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 1 of the Radio Law
    - All Scope B2 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 2 of the Radio Law
    - All Scope B3 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 3 of the Radio Law

C- ***A Product Certification Body accredited to ISO/IEC 17065:2012 by A2LA (Product Certification Body Accreditation Certificate Number 3297.01)*** to certify Products to USA's Environmental Protection Agency (EPA) ENERGY STAR Product Specifications for:

1 Electronics and Office Equipment:
- for Telephony (ver. 3.0)
- for Audio/Video (ver. 3.0)
- for Battery Charging Systems (ver. 1.1)
- for Set-top Boxes & Cable Boxes (ver. 4.1)
- for Televisions (ver. 6.1)
- for Computers (ver. 6.0)
- for Displays (ver. 6.0)
- for Imaging Equipment (ver. 2.0)
- for Computer Servers (ver. 2.0)

2 Commercial Food Service Equipment
- for Commercial Dishwashers (ver. 2.0)
- for Commercial Ice Machines (ver. 2.0)
- for Commercial Ovens (ver. 2.1)
- for Commercial Refrigerators and Freezers

3 Lighting Products
- For Decorative Light Strings (ver. 1.5)
- For Luminaires (including sub-components) and Lamps (ver. 1.2)
- For Compact Fluorescent Lamps (CFLs) (ver. 4.3)
- For Integral LED Lamps (ver. 1.4)

4 Heating, Ventilation, and AC Products
- for Residential Ceiling Fans (ver. 3.0)
- for Residential Ventilating Fans (ver. 3.2)

5 Other
- For Water Coolers (ver. 3.0)

D- ***A NIST Designated Phase-I and Phase-II Conformity Assessment Body (CAB) for the following economies and regulatory authorities under the terms of the stated MRAs/Treaties:***

- Australia: ACMA (Australian Communication and Media Authority) – APEC Tel MRA -Phase I;
- Canada: (Innovation, Science and Economic development Canada - ISEDC) Foreign Certification Body – FCB – APEC Tel MRA -Phase I & Phase II;
- Chinese Taipei (Republic of China – Taiwan):
  - BSMI (Bureau of Standards, Metrology and Inspection) APEC Tel MRA -Phase I;
  - NCC (National Communications Commission) APEC Tel MRA -Phase I;
- European Union:
  - EMC Directive 2014/30/EU US-EU EMC & Telecom MRA CAB (NB)
  - Radio Equipment (RE) Directive 2014/53/EU US-EU EMC & Telecom MRA CAB (NB)
  - Low Voltage Directive (LVD) 2014/35/EU
- Hong Kong Special Administrative Region: (Office of the Telecommunications Authority – OFTA) APEC Tel MRA -Phase I & Phase II
- Israel – US-Israel MRA Phase I
- Republic of Korea (Ministry of Communications - Radio Research Laboratory) APEC Tel MRA -Phase I
- Singapore: (Infocomm Media Development Authority - IMDA) APEC Tel MRA -Phase I & Phase II;
- Japan: VCCI - Voluntary Control Council for Interference US-Japan Telecom Treaty VCCI Side Letter-
- USA:
  - ENERGY STAR Recognized Test Laboratory – US EPA
  - Telecommunications Certification Body (TCB) – US FCC;
  - Nationally Recognized Test Laboratory (NRTL) – US OSHA
- Vietnam: APEC Tel MRA -Phase I;

2 System Test Configuration

2.1 Justification

The EUT was configured for testing according to ANSI C63.10-2013 and FCC KDB 558074 D01 DTS Meas Guidance v04.

The EUT was tested in a testing mode to represent worst-case results during the final qualification test.

The worst-case configuration was selected based on the original test report, and verified consistent by measuring the fundamental field strength.

2.2 EUT Exercise Software

The test firmware used was Tera Term and test commands, provided by *The Detection Group, Inc.*, the software is compliant with the standard requirements being tested against.

Modulation	Frequency (MHz)	Power Setting
802.11b	2412	17
	2437	17
	2462	17
802.11g	2412	13
	2437	13
	2462	13
802.11n	2412	12
	2437	12
	2462	12
BLE	2402	Default
	2442	Default
	2480	Default

Data Rates Tested:
802.11b mode: Default
802.11g mode: Default
802.11n20 mode: Default
BLE: Default

2.3 Equipment Modifications

No equipment modifications are made to the EUT

2.4 Local Support Equipment

Manufacturer	Description	Model	Serial Number
ASUS	Laptop	-	-

2.5 Support Equipment

Manufacturer	Description	Model
TRIAD	Power supply	WSU050-4000

2.6 Interface Ports and Cabling

Cable Description	Length	To	From
USB cable	1 m	EUT	Laptop

3 Summary of Test Results

Results reported relate only to the product tested.

FCC and ISEDC Rules	Description of Test	Results
FCC §2.1091, §15.247(i) ISEDC RSS-102	RF Exposure	Compliant
FCC §15.207, ISEDC RSS GEN §8.8	AC Power Line Conducted Emissions	Compliant
FCC §2.1053, §15.35(b), §15.205, §15.209, §15.247 (d) ISEDC RSS-247 §5.5 ISEDC RSS-Gen §8.9 and §8.10	Radiated Spurious Emissions	Compliant

4 FCC §2.1091, §15.247(i) & ISEDC RSS-102 – RF Exposure

4.1 Applicable Standards

According to FCC §15.247(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to KDB 447 498 Section (7.2), "simultaneous transmission of MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on calculated or measured field strengths or power density, is ≤ 1.0. The MPE ratio of each antenna is determined at the minimum *test separation distance* required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to MPE limit, at the test frequency.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minutes)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	* (100)	30
1.34-30	824/f	2.19/f	* ($180/f^2$)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

Where: f = frequency in MHz
* = Plane-wave equivalent power density

Before equipment certification is granted, the procedure of IC RSS-102 must be followed concerning the exposure of humans to RF field.

According to ISED RSS-102 Issue 5:

Table 4: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m^2)	Reference Period (minutes)
0.003-10[21]	83	90	-	Instantaneous*
0.1-10	-	$0.73/f$	-	6**
1.1-10	$87/f^{0.5}$	-	-	6**
10-20	27.46	0.0728	2	6
20-48	$58.07/f^{0.25}$	$0.1540/f^{0.25}$	$8.944/f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142 f^{0.3417}$	$0.008335 f^{0.3417}$	$0.02619 f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000/f^{1.2}$
150000-300000	$0.158 f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	$6.67 \times 10^{-5} f$	$616000/f^{1.2}$

Note: f is frequency in MHz.
* Based on nerve stimulation (NS).
** Based on specific absorption rate (SAR).

4.2 MPE Prediction

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density
P = power input to antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

4.3 MPE Results

2.4 Wi-Fi Radio

Maximum peak output power at antenna input terminal (dBm):	22.40
Maximum peak output power at antenna input terminal (mW):	173.78
Prediction distance (cm):	20
Maximum Antenna Gain, typical (dBi):	1.4
Maximum Antenna Gain (numeric):	1.38
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.048
FCC MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0
MPE Ratio (numeric):	0.048

900 MHz Radio (FCC ID: 2AK4V-DT-550, IC: 22517-DT550)

Maximum peak output power at antenna input terminal (dBm):	23.89
Maximum peak output power at antenna input terminal (mW):	244.91
Prediction distance (cm):	20
Prediction frequency (MHz):	906
Maximum Antenna Gain, typical (dBi):	1.2
Maximum Antenna Gain (numeric):	1.31
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.0642
FCC MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	0.604
MPE Ratio (numeric):	0.106

LTE Radio (FCC ID: RI7ME910C1NA, IC: 5131A-ME910C1NA)

Band	Frequency (MHz)	Max Conducted Power (dBm)	Evaluated Distance (cm)	Antenna Gain (dBi)	MPE (mW/cm^2)	MPE Limit (mW/cm^2)	MPE Ratio
FDD4	1710.7	24.00	20	2.5	0.08887	1.00	0.089
FDD2	1850.7	24.00	20	2.5	0.08887	1.00	0.089
FDD12	699.0	24.45	20	-0.4	0.05055	0.466	0.108
FDD13	777.0	24.00	20	-0.4	0.04558	0.518	0.088

Radio Co-location

Worst Case Co-location 2.4 GHz Wi-Fi Radio, 900 MHz Radio and LTE Band FDD12:

Frequency Band	Max EIRP Power (dBm)	Evaluated Distance (cm)	Worst-Case MPE (mW/cm^2)	MPE Limit (mW/cm^2)	Worst-Case MPE Ratios	Sum of MPE Ratios	Limit
Worst Case							
2.4 GHz Wi-Fi	23.80	20	0.048	1.0	4.8%	26.2%	100%
900 MHz Radio	25.09	20	0.0604	0.604	10.6%		
LTE Band FDD12	24.05	20	0.051	0.466	10.8%		

The device is compliant with the requirement MPE limit for uncontrolled exposure. The maximum MPE ratio at the distance of 20 cm is 26.2% Limit is 100%.

4.4 RF exposure evaluation exemption for IC

2.4 Wi-Fi

Maximum EIRP power = 22.40 dBm + 1.4 dBi = 23.8 dBm which is less than $1.31\times10^{-2}f^{0.6834}$ = 2.70 W = 34.31 dBm

900 MHz Radio (FCC ID: 2AK4V-DT-550, IC: 22517-DT550)

Worst Case at 906MHz

Maximum EIRP power = 23.89 dBm + 1.2 dBi = 25.09 dBm which is less than $1.31\times10^{-2}f^{0.6834}$ = 1.37 W = 31.38 dBm

LTE Radio (FCC ID: RI7ME910C1NA, IC: 5131A-ME910C1NA)

Band	Frequency (MHz)	Max Conducted Power (dBm)	Evaluated Distance (cm)	Antenna Gain (dBi)	MPE (W/m^2)	MPE Limit (W/m^2)	MPE Ratio
FDD4	1710.7	24.00	20	2.5	0.89	4.24	0.21
FDD2	1850.7	24.00	20	2.5	0.89	4.48	0.20
FDD12	699.0	24.45	20	-0.4	0.51	2.30	0.22
FDD13	777.0	24.00	20	-0.4	0.46	2.47	0.18

Radio Co-location

Worst Case Co-location 2.4 GHz Wi-Fi Radio, 900 MHz Radio and LTE Band FDD12:

Frequency Band	Max EIRP Power (dBm))	Evaluated Distance (cm)	Worst-Case MPE (W/cm^2)	MPE Limit (W/cm^2)	Worst-Case MPE Ratios	Sum of MPE Ratios	Limit
Worst Case							
2.4 GHz Wi-Fi	23.8	20	0.48	5.37	8.9%	54.4%	100%
900MHz Radio	25.09	20	0.64	2.75	23.3%		
LTE Band FDD12	24.05	20	0.51	2.30	22.2%		

The device is compliant with the requirement MPE limit for uncontrolled exposure. The maximum MPE ratio at the distance of 20 cm is 54.4% Limit is 100%.

Note: the antenna gain is information provided by manufacturer.

5 FCC §15.207 & ISEDC RSS-Gen §8.8 - AC Power Line Conducted Emissions

5.1 Applicable Standards

As per FCC §15.207, ISEDC RSS GEN §8.8

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56 [1]	56 to 46 [2]
0.5-5	56	46
5-30	60	50

Note[1]: Decreases with the logarithm of the frequency.
Note[2]: A linear average detector is required.

5.2 Test Setup

The measurement was performed at shield room, using the setup per ANSI C63.10-2013 measurement procedure. The specification used was FCC §15.207 limits and ISEDC RSS GEN §8.8.

External I/O cables were draped along the edge of the test table and bundled when necessary.
The AC/DC power adapter of the EUT was connected with LISN-1 which provided 120 V / 60 Hz AC power.

5.3 Test Procedure

During the conducted emissions test, the power cord of the EUT host system was connected to the main outlet of the LISN-1 and the power cords of support equipment were connected to LISN-2.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the peak, quasi-peak, and average detection mode. Quasi-Peak readings are distinguished with “QP.” Average readings are distinguished with “Ave”.

5.4 Corrected Amplitude and Margin Calculation

The Corrected Amplitude (CA) is calculated by adding the Cable Loss (CL), the Attenuator Factor (Atten) to indicated Amplitude (Ai) reading. The basic equation is as follows:

CA = Ai + CL + Atten

For example, a corrected amplitude of 46.2 dBuV = Indicated Reading (32.5 dBuV) + Cable Loss (3.7 dB) + Attenuator (10 dB)

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of -7 dB means the emission is 7 dB below the maximum limit. The equation for margin calculation is as follows:

Margin = Corrected Amplitude - Limit

5.5 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Rohde and Schwarz	Receiver, EMI Test	ESCI 1166.5950.03	100338	2020-03-15	2 years
Rohde and Schwarz	Impulse Limiter	ESH3-Z2	101963	2020-07-01	1 year
Solar Electronics Company	High Pass Filter	Type 7930-100	7930150204	2020-11-12	1 year
Suirong	30 ft conductive emission cable	LMR 400	-	N/R	N/A
FCC	LISN	FCC-LISN-50-25-2-10-CISPR16	160129	2020-10-13	1 year
Vasona	Test software	V6.0 build 11	10400213	N/R	N/R

Statement of Traceability: BACL Corp. *attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 "A2LA Policy on Metrological Traceability".*

5.6 Test Environmental Conditions

Temperature:	20º C
Relative Humidity:	59 %
ATM Pressure:	102.27 kPa

The testing was performed by Allen Huang on 2020-12-10 in 5m chamber 3.

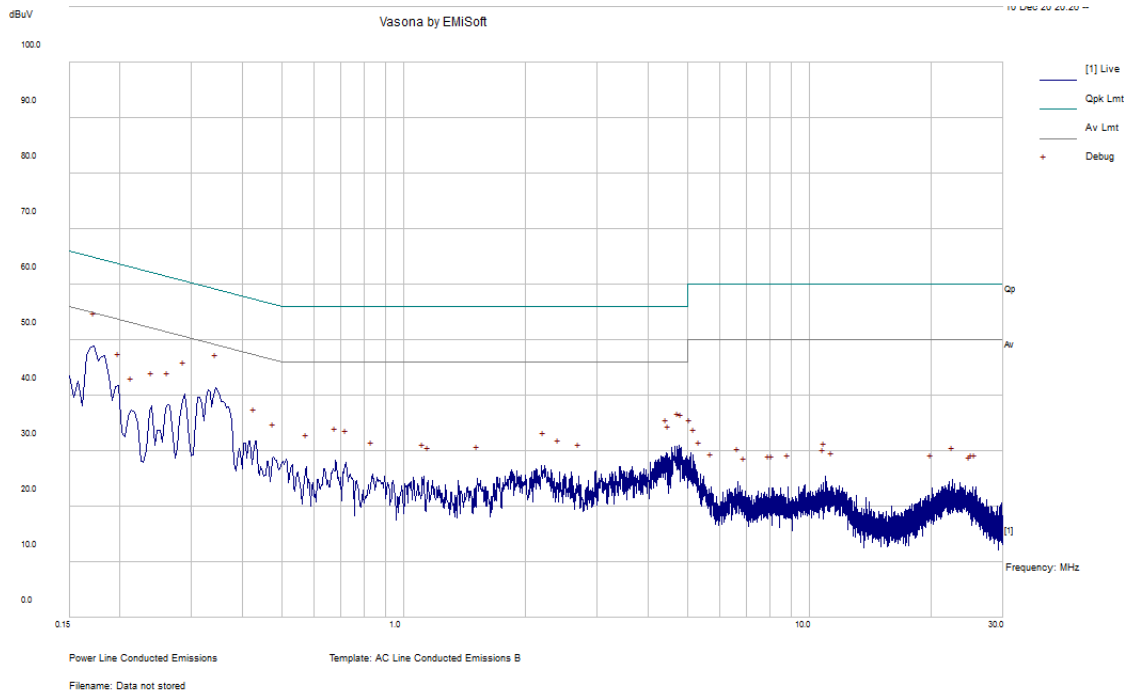
5.7 Summary of Test Results

According to the recorded data in following table, the EUT complied with the FCC Part 15 and RSS-Gen standards' conducted emissions limits, with the margin reading of:

Connection: AC/DC adapter connected to 120 V/60 Hz, AC			
Margin (dB)	**Frequency (MHz)**	**Conductor Mode (Live/Neutral)**	**Range (MHz)**
-15.47	0.155566	Line	0.15-30

5.8 Conducted Emissions Test Plots and Data

120 V, 60 Hz – Line



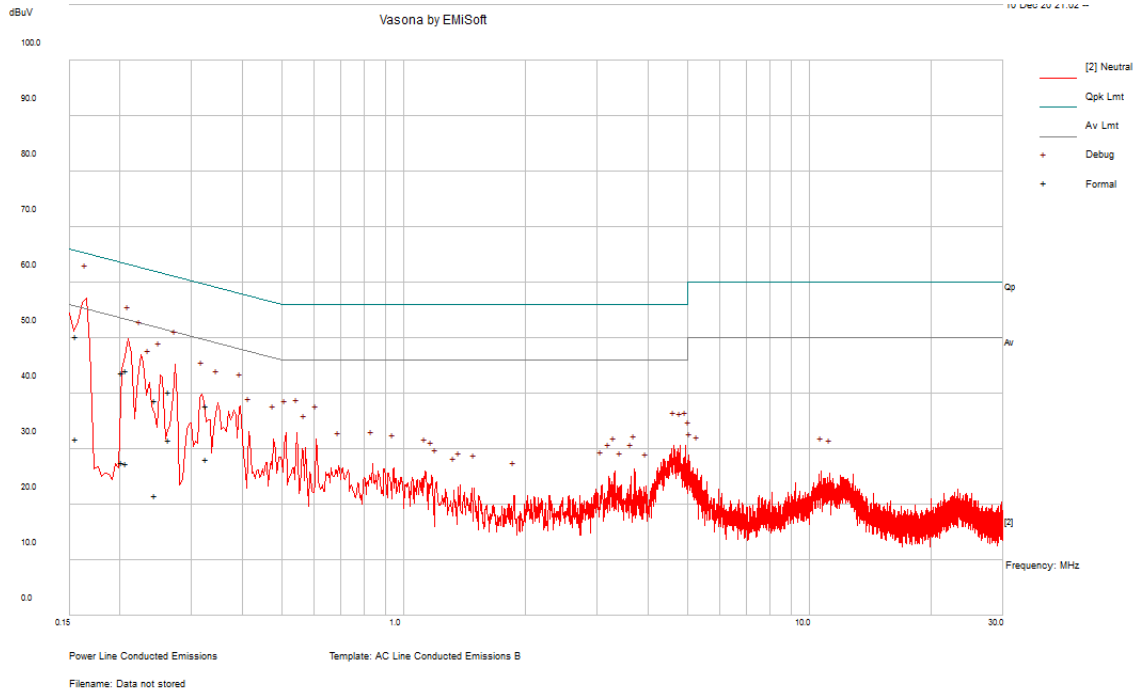
Quasi-Peak Measurement:

Frequency (MHz)	Raw Data (dBuV)	Cable Loss (dB)	Factors (dB)	Level (dBuV)	Conductor (Line/Neutral)	Limit (dBuV)	Margin (dB)
0.156225	40.14	9.8	-0.21	49.73	Line	65.66	-15.93
0.340204	29.08	9.77	-0.07	38.79	Line	59.2	-20.41
0.291036	26.72	9.78	-0.08	36.42	Line	60.49	-24.07
0.183822	34.42	9.79	-0.16	44.05	Line	64.31	-20.26
0.244737	26.53	9.79	-0.11	36.22	Line	61.93	-25.72
0.233598	28.3	9.79	-0.11	37.98	Line	62.32	-24.34

Average Measurement:

Frequency (MHz)	Raw Data (dBuV)	Cable Loss (dB)	Factors (dB)	Level (dBuV)	Conductor (Line/Neutral)	Limit (dBuV)	Margin (dB)
0.156225	20.27	9.8	-0.21	29.86	Line	55.66	-25.8
0.340204	15.36	9.77	-0.07	25.06	Line	49.2	-24.14
0.291036	20.84	9.78	-0.08	30.54	Line	50.49	-19.95
0.183822	15.25	9.79	-0.16	24.89	Line	54.31	-29.42
0.244737	12.45	9.79	-0.11	22.13	Line	51.93	-29.8
0.233598	15.43	9.79	-0.11	25.11	Line	52.32	-27.21

120 V, 60 Hz – Neutral



Quasi-Peak Measurement:

Frequency (MHz)	Raw Data (dBuV)	Cable Loss (dB)	Factors (dB)	Level (dBuV)	Conductor (Line/Neutral)	Limit (dBuV)	Margin (dB)
0.155566	40.64	9.8	-0.21	50.23	Neutral	65.7	-15.47
0.202108	34.21	9.79	-0.13	43.87	Neutral	63.52	-19.65
0.207638	34.47	9.79	-0.13	44.13	Neutral	63.3	-19.17
0.263546	30.66	9.79	-0.1	40.35	Neutral	61.32	-20.96
0.244379	29.18	9.79	-0.11	38.86	Neutral	61.95	-23.08
0.325712	28.09	9.78	-0.07	37.8	Neutral	59.56	-21.76

Average Measurement:

Frequency (MHz)	Raw Data (dBuV)	Cable Loss (dB)	Factors (dB)	Level (dBuV)	Conductor (Line/Neutral)	Limit (dBuV)	Margin (dB)
0.155566	22.29	9.8	-0.21	31.88	Neutral	55.7	-23.82
0.202108	17.94	9.79	-0.13	27.59	Neutral	53.52	-25.93
0.207638	17.85	9.79	-0.13	27.51	Neutral	53.3	-25.79
0.263546	21.93	9.79	-0.1	31.63	Neutral	51.32	-19.69
0.244379	12.06	9.79	-0.11	21.74	Neutral	51.95	-30.21
0.325712	18.42	9.78	-0.07	28.12	Neutral	49.56	-21.44

6 FCC §15.209, §15.247(d) & ISEDC RSS-247 §5.5, RSS-Gen §8.9, §8.10 - Spurious Radiated Emissions

6.1 Applicable Standards

As per FCC §15.35(d): Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz.

As Per FCC §15.205(a) except as show in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 – 0.110 0.495 – 0.505 2.1735 – 2.1905 4.125 – 4.128 4.17725 – 4.17775 4.20725 – 4.20775 6.215 – 6.218 6.26775 – 6.26825 6.31175 – 6.31225 8.291 – 8.294 8.362 – 8.366 8.37625 – 8.38675 8.41425 – 8.41475 12.29 – 12.293 12.51975 – 12.52025 12.57675 – 12.57725 13.36 – 13.41	16.42 – 16.423 16.69475 – 16.69525 25.5 – 25.67 37.5 – 38.25 73 – 74.6 74.8 – 75.2 108 – 121.94 123 – 138 149.9 – 150.05 156.52475 – 156.52525 156.7 – 156.9 162.0125 –167.17 167.72 – 173.2 240 – 285 322 – 335.4 399.9 – 410 608 – 614	960 – 1240 1300 – 1427 1435 – 1626.5 1645.5 – 1646.5 1660 – 1710 1718.8 – 1722.2 2200 – 2300 2310 – 2390 2483.5 – 2500 2690 – 2900 3260 – 3267 3.332 – 3.339 3 3458 – 3 358 3.600 – 4.400	4. 5 – 5. 15 5. 35 – 5. 46 7.25 – 7.75 8.025 – 8.5 9.0 – 9.2 9.3 – 9.5 10.6 – 12.7 13.25 – 13.4 14.47 – 14.5 15.35 – 16.2 17.7 – 21.4 22.01 – 23.12 23.6 – 24.0 31.2 – 31.8 36.43 – 36.5 Above 38.6

As per FCC §15.209(a): Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table

Frequency (MHz)	Field Strength (micro volts/meter)	Measurement Distance (meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100**	3
88 - 216	150**	3
216 - 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

As per FCC §15.247 (d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c).

6.2 Test Setup

The radiated emissions tests were performed in the 5-meter Chamber, using the setup in accordance with ANSI C63.10-2013. The specification used was the FCC 15 Subpart C limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundle when necessary.

6.3 Test Procedure

The EUT host, and all support equipment power cords were connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

For radiated testing the EUT was set 3 meter away from the testing antenna, which was varied from 1-4 meter, and the EUT was placed on a turntable, which was 0.8 meter and 1.5 meter above the ground plane for below and above 1000 MHz measurements, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna's polarity should be changed between horizontal and vertical.

The spectrum analyzer or receiver was set as:

Below 1000 MHz:

RBW = 100 kHz / VBW = 300 kHz / Sweep = Auto

Above 1000 MHz:

(1) Peak: RBW = 1MHz / VBW = 3MHz / Sweep = 100 ms
(2) Average: RBW = 1MHz / VBW = 3MHz / Sweep = Auto

6.4 Corrected Amplitude and Margin Calculation

The Corrected Amplitude (CA) is calculated by adding the Antenna Factor (AF), the Cable Loss (CL), the Attenuator Factor (Atten) and subtracting the Amplifier Gain (Ga) to indicated Amplitude (Ai) reading. The basic equation is as follows:

CA = Ai + AF + CL + Atten – Ga

For example, a corrected amplitude of 40.3 dBuV/m = Indicated Reading (32.5 dBuV) + Antenna Factor (+23.5dB) + Cable Loss (3.7 dB) + Attenuator (10 dB) - Amplifier Gain (29.4 dB)

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of -7 dB means the emission is 7 dB below the maximum limit. The equation for margin calculation is as follows:

Margin = Corrected Amplitude - Limit

6.5 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Rohde and Schwarz	Receiver, EMI Test	ESCI 1166.5950K03	100044	2018-10-26	2.5 years
Agilent	Analyzer, Spectrum	E4440A	US45303156	2020-09-01	1 year
Sunol Sciences	System Controller	SC99V	011003-1	N/R	N/A
Sunol Sciences	Antenna, Biconi-Log	JB3	A020106-2	2019-11-20	2 years
ETS Lindgren	Antenna, Horn	3117	9511-4627	2019-02-13	2.5 years
Agilent	Amplifier, Pre	8449B	3147A00400	2020-02-07	1 year
Insulated Wire INC	157 Series 2.92 SM (x2) Armored 33 ft. Cable	KPS-1571AN-3960-KPS	DC 1917	2020-02-28	1 years
-	SMA cable	-	C0002	Each time[1]	N/A
A.H. Systems	Pre-Amplifer	PAM 1840V	170	2019-11-09	1 Year
HP	Pre-Amplifier	8447D	2944A07030	2020-08-17	1 year
Wisewave	Antenna, Horn	ARH-4223-02	10555-01	2020-02-27	2 years
BACL	5m3 Sensitivity Box	1	2	2019-10-02	1 years

Note[1]: cable and attenuator included in the test set-up will be checked each time before testing.
Statement of Traceability: BACL Corp. *attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 "A2LA Policy on Metrological Traceability".*

6.6 Test Environmental Conditions

Temperature:	22-25 ºC
Relative Humidity:	42-48 %
ATM Pressure:	102.1 kPa

The testing was performed by Zhao Zhao from 2020-09-17 and 2020-09-24 in 5m chamber 3.

6.7 Summary of Test Results

According to the data hereinafter, the EUT complied with FCC Title 47, Part 15C and RSS-247 standard's radiated emissions limits, and had the worst margin of:

2.4GHz Wi-Fi

Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Mode, channel**
-0.03	2483.5	Horizontal	2462 MHz, Non-HT mode

BLE

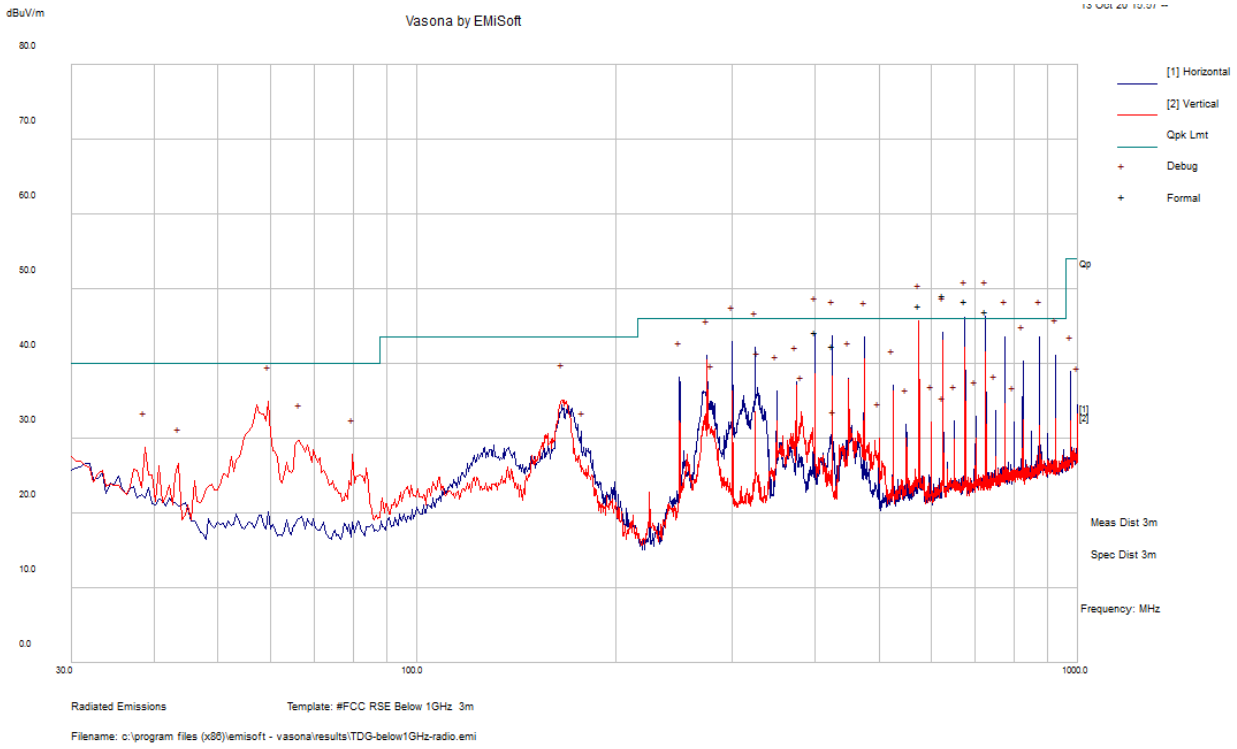
Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Mode, channel**
-2.68	274.975	Horizontal	2442 MHz, BLE

Please refer to the following table and plots for specific test result details

6.8 Spurious Emissions Test Results

1) 30 MHz – 1 GHz Worst Case, Measured at 3 meters

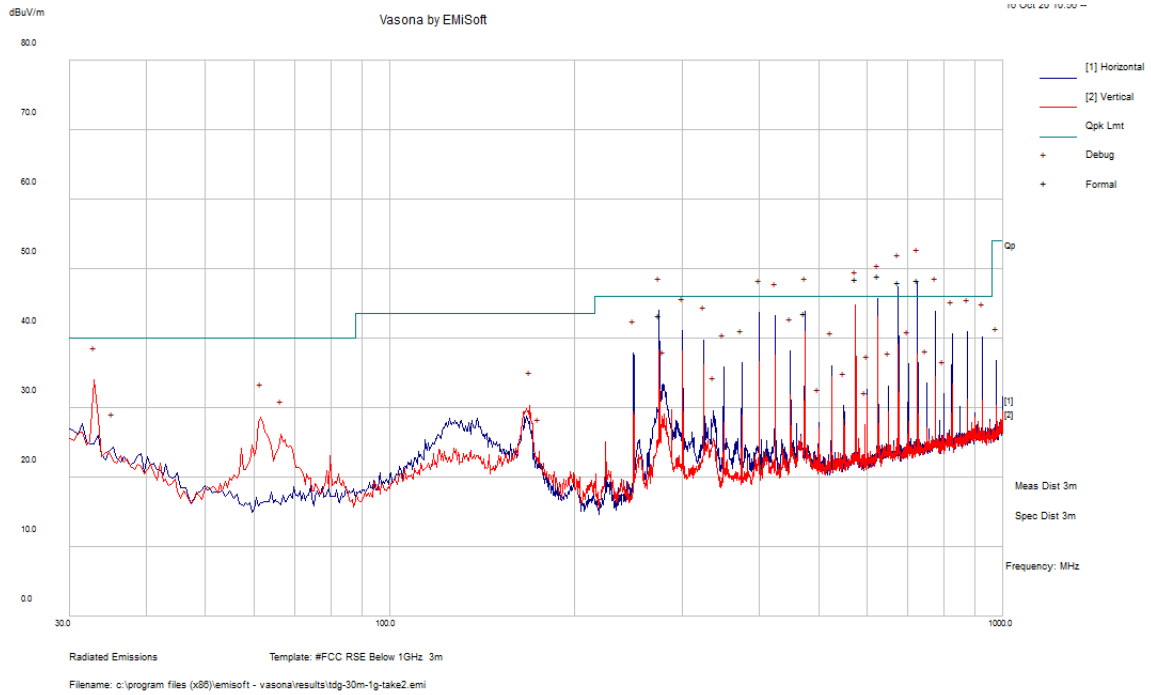
Wi-Fi Worst Case: High Channel 2462MHz b mode



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Comment
725.0255	47.02	117	H	94	79.92	-32.9	QP
675.02	48.36	118	H	96	79.92	-31.56	QP
575.0235	47.74	145	H	292	79.92	-32.18	QP
625.02625	49.2	128	H	84	79.92	-30.72	QP
400.00825	44.31	100	H	322	46	-1.69	QP
425.00175	42.44	216	H	251	79.92	-37.48	QP

Note: The limit for those frequencies who didn't fall in the restric band was calculated from the worst case of the average measurement of the fundamental signal.

BLE Worst Case: Middle Channel 2442MHz



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Comment
725.023	48.36	105	H	281	70.47	-22.11	QP
675.02725	48.03	126	H	264	70.47	-22.44	QP
625.02175	49.02	135	H	263	70.47	-21.45	QP
575.01425	48.57	145	H	268	70.47	-21.9	QP
274.975	43.32	114	H	113	46	-2.68	QP
475.0155	43.66	186	H	92	70.47	-26.81	QP

Note: The limit for those frequencies who didn't fall in the restric band was calculated from the worst case of the average measurement of the fundamental signal.

2) Above 1 GHz, measured at 3 meters

2.4GHz Wi-Fi

Freq. (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/ISED		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 2412 MHz CCK mode power setting: 17											
2412	70.94	192	126	V	32.6	5.59	0	109.13	-	-	Peak
2412	71.2	197	192	H	32.6	5.59	0	109.39	-	-	Peak
2412	67.33	192	126	V	32.6	5.59	0	105.52	-	-	Ave
2412	68.49	197	192	H	32.6	5.59	0	106.68	-	-	Ave
2390	28.39	192	126	V	32.6	5.59	0	66.58	74	-7.42	Peak
2390	28.63	197	192	H	32.6	5.59	0	66.82	74	-7.18	Peak
2390	15.28	192	126	V	32.6	5.59	0	55.64	54	-0.53	Ave
2390	15.54	197	192	H	32.6	5.59	0	55.55	54	-0.27	Ave
4824	42.54	0	100	V	35	9.89	35.43	52.00	74	-22.00	Peak
4824	42.33	0	100	H	35	9.89	35.43	51.79	74	-22.21	Peak
4824	31.67	0	100	V	35	9.89	35.43	41.13	54	-12.87	Ave
4824	31.39	0	100	H	35	9.89	35.43	40.85	54	-13.15	Ave
7236	45.06	360	169	V	36.1	9.83	35.82	55.17	74	-18.83	Peak
7236	44.60	106	178	H	36.1	9.83	35.82	54.71	74	-19.29	Peak
7236	35.98	360	169	V	36.1	9.83	35.82	46.09	54	-7.91	Ave
7236	34.38	106	178	H	36.1	9.83	35.82	44.49	54	-9.51	Ave
Mid Channel 2442 MHz CCK mode power setting: 17											
2437	71.04	271	144	V	32.8	5.59	0	109.43	-	-	Peak
2437	71.97	324	191	H	32.8	5.59	0	110.36	-	-	Peak
2437	67.65	271	144	V	32.8	5.59	0	106.04	-	-	Ave
2437	68.83	324	191	H	32.8	5.59	0	107.22	-	-	Ave
4884	41.94	0	100	V	35.2	10.96	35.43	52.67	74	-21.33	Peak
4884	42.27	0	100	H	35.2	10.96	35.43	53	74	-21	Peak
4884	29.81	0	100	V	35.2	10.96	35.43	40.54	54	-13.46	Ave
4884	29.85	0	100	H	35.2	10.96	35.43	40.58	54	-13.42	Ave
7326	44.08	360	169	V	36.1	10.95	35.82	55.31	74	-18.69	Peak
7326	44.58	108	171	H	36.1	10.95	35.82	55.81	74	-18.19	Peak
7326	33.87	360	169	V	36.1	10.95	35.82	45.1	54	-8.9	Ave
7326	34.20	108	171	H	36.1	10.95	35.82	45.426	54	-8.574	Ave

Freq. (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/ISED		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
High Channel 2462 MHz CCK mode power setting: 17											
2462	70.35	269	100	V	33	5.59	0	108.94	-	-	Peak
2462	74.81	223	128	H	33	5.59	0	113.4	-	-	Peak
2462	66.94	269	100	V	33	5.59	0	105.53	-	-	Ave
2462	71.33	223	128	H	33	5.59	0	109.92	-	-	Ave
2483.5	29.10	269	100	V	33	5.6	0	67.70	74	-6.30	Peak
2483.5	28.86	223	128	H	33	5.6	0	67.46	74	-6.54	Peak
2483.5	15.12	269	100	V	33	5.6	0	53.72	54	-0.28	Ave
2483.5	15.25	223	128	H	33	5.6	0	53.85	54	-0.15	Ave
4924	41.42	0	100	V	35.4	11.07	35.43	52.46	74	-21.54	Peak
4924	42.87	0	100	H	35.4	11.07	35.43	53.91	74	-20.09	Peak
4924	30.09	0	100	V	35.4	11.07	35.43	41.13	54	-12.87	Ave
4924	30.64	0	100	H	35.4	11.07	35.43	41.68	54	-12.32	Ave
7386	44.78	360	169	V	36.1	12.73	35.9	57.71	74	-16.29	Peak
7386	45.26	108	171	H	36.1	12.73	35.9	58.19	74	-15.81	Peak
7386	33.54	360	169	V	36.1	12.73	35.9	46.47	54	-7.53	Ave
7386	34.38	108	171	H	36.1	12.73	35.9	47.31	54	-6.69	Ave

Freq. (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/ISED		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 2412 MHz Non-HT mode power setting: 13											
2412	71.01	286	151	V	32.6	5.59	0	109.2	-	-	Peak
2412	72.74	322	196	H	32.6	5.59	0	110.93	-	-	Peak
2412	61.68	286	151	V	32.6	5.59	0	99.87	-	-	Ave
2412	63.11	322	196	H	32.6	5.59	0	101.3	-	-	Ave
2390	30.72	286	151	V	32.6	5.59	0	68.91	74	-5.09	Peak
2390	31.20	322	196	H	32.6	5.59	0	69.39	74	-4.61	Peak
2390	15.07	286	151	V	32.6	5.59	0	53.26	54	-0.74	Ave
2390	15.74	322	196	H	32.6	5.59	0	53.93	54	-0.07	Ave
4824	42.28	0	100	V	35	9.89	35.43	51.74	74	-22.26	Peak
4824	42.63	0	100	H	35	9.89	35.43	52.09	74	-21.91	Peak
4824	31.73	0	100	V	35	9.89	35.43	41.19	54	-12.81	Ave
4824	31.57	0	100	H	35	9.89	35.43	41.03	54	-12.97	Ave
7236	43.77	360	169	V	36.1	9.83	35.82	53.88	74	-20.12	Peak
7236	44.38	106	178	H	36.1	9.83	35.82	54.49	74	-19.51	Peak
7236	31.92	360	169	V	36.1	9.83	35.82	42.03	54	-11.97	Ave
7236	32.26	106	178	H	36.1	9.83	35.82	42.37	54	-11.63	Ave
Mid Channel 2442 MHz Non-HT mode power setting: 13											
2437	70.62	271	148	V	32.8	5.59	0	109.01	-	-	Peak
2437	72.14	321	190	H	32.8	5.59	0	110.53	-	-	Peak
2437	61.55	271	148	V	32.8	5.59	0	99.94	-	-	Ave
2437	62.76	321	190	H	32.8	5.59	0	101.15	-	-	Ave
4884	42.08	0	100	V	35.2	10.96	35.43	52.81	74	-21.19	Peak
4884	42.64	0	100	H	35.2	10.96	35.43	53.37	74	-20.63	Peak
4884	30.55	0	100	V	35.2	10.96	35.43	41.28	54	-12.72	Ave
4884	31.03	0	100	H	35.2	10.96	35.43	41.76	54	-12.24	Ave
7326	42.57	360	169	V	36.1	10.95	35.82	53.8	74	-20.2	Peak
7326	43.21	106	178	H	36.1	10.95	35.82	54.44	74	-19.56	Peak
7326	31.78	360	169	V	36.1	10.95	35.82	43.01	54	-10.99	Ave
7326	32.73	106	178	H	36.1	10.95	35.82	43.96	54	-10.04	Ave

Freq. (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/ISED		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
High Channel 2462 MHz Non-HT mode power setting: 13											
2462	71.56	176	100	V	33	5.59	0	110.15	-	-	Peak
2462	73.39	319	100	H	33	5.59	0	111.98	-	-	Peak
2462	61.64	176	100	V	33	5.59	0	100.23	-	-	Ave
2462	64.4	319	100	H	33	5.59	0	102.99	-	-	Ave
2483.5	28.64	176	100	V	33	5.59	0	67.23	74	-6.77	Peak
2483.5	28.32	319	100	H	33	5.59	0	66.91	74	-7.09	Peak
2483.5	15.17	176	100	V	33	5.59	0	53.76	54	-0.24	Peak
2483.5	15.38	319	100	H	33	5.59	0	53.97	54	-0.03	Ave
4924	41.94	0	100	V	35.4	11.07	35.43	52.98	74	-21.02	Peak
4924	43.16	0	100	H	35.4	11.07	35.43	54.20	74	-19.80	Peak
4924	30.25	0	100	V	35.4	11.07	35.43	41.29	54	-12.71	Ave
4924	30.33	0	100	H	35.4	11.07	35.43	41.37	54	-12.63	Ave
7386	42.51	360	169	V	36.1	12.73	35.9	55.44	74	-18.56	Peak
7386	43.01	106	178	H	36.1	12.73	35.9	55.94	74	-18.06	Peak
7386	31.65	360	169	V	36.1	12.73	35.9	44.58	54	-9.42	Ave
7386	32.07	106	178	H	36.1	12.73	35.9	45.00	54	-9.00	Ave

Freq. (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/ISED		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 2412 MHz HT20 mode power setting: 12											
2412	69.7	279	151	V	32.6	5.59	0	107.89	-	-	Peak
2412	71.5	322	196	H	32.6	5.59	0	109.69	-	-	Peak
2412	60.34	279	151	V	32.6	5.59	0	98.53	-	-	Ave
2412	61.88	322	196	H	32.6	5.59	0	100.07	-	-	Ave
2390	29.00	279	151	V	32.6	5.59	0	67.19	74	-6.81	Peak
2390	29.57	322	196	H	32.6	5.59	0	67.76	74	-6.24	Peak
2390	15.33	279	151	V	32.6	5.59	0	53.52	54	-0.48	Ave
2390	15.58	322	196	H	32.6	5.59	0	53.77	54	-0.23	Ave
4824	42.65	0	100	V	35	9.89	35.43	52.11	74	-21.89	Peak
4824	42.54	0	100	H	35	9.89	35.43	52.00	74	-22.00	Peak
4824	31.85	0	100	V	35	9.89	35.43	41.31	54	-12.69	Ave
4824	31.74	0	100	H	35	9.89	35.43	41.20	54	-12.80	Ave
7236	43.35	360	169	V	36.1	9.83	35.82	53.46	74	-20.54	Peak
7236	44.16	106	178	H	36.1	9.83	35.82	54.27	74	-19.73	Peak
7236	31.85	360	169	V	36.1	9.83	35.82	41.96	54	-12.04	Ave
7236	32.25	106	178	H	36.1	9.83	35.82	42.36	54	-11.64	Ave
Mid Channel 2442 MHz HT-20 mode power setting: 12											
2437	69.75	280	127	V	32.8	5.59	0	108.14	-	-	Peak
2437	72.91	223	133	H	32.8	5.59	0	111.3	-	-	Peak
2437	60.3	280	127	V	32.8	5.59	0	98.69	-	-	Ave
2437	63.58	223	133	H	32.8	5.59	0	101.97	-	-	Ave
4884	42.17	0	100	V	35.2	10.96	35.43	52.9	74	-21.1	Peak
4884	42.36	0	100	H	35.2	10.96	35.43	53.09	74	-20.91	Peak
4884	30.25	0	100	V	35.2	10.96	35.43	40.98	54	-13.02	Ave
4884	29.96	0	100	H	35.2	10.96	35.43	40.69	54	-13.31	Ave
7326	43.42	360	169	V	36.1	10.95	35.82	54.65	74	-19.35	Peak
7326	44.38	106	178	H	36.1	10.95	35.82	55.61	74	-18.39	Peak
7326	31.47	360	169	V	36.1	10.95	35.82	42.7	54	-11.3	Ave
7326	31.96	106	178	H	36.1	10.95	35.82	43.19	54	-10.81	Ave

Freq. (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/ISED		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
High Channel 2462 MHz HT-20 mode power setting: 12											
2462	69.34	176	100	V	33	5.59	0	107.93	-	-	Peak
2462	71.22	319	100	H	33	5.59	0	109.81	-	-	Peak
2462	60.08	176	100	V	33	5.59	0	98.67	-	-	Ave
2462	61.96	319	100	H	33	5.59	0	100.55	-	-	Ave
2483.5	28.34	176	100	V	33	5.6	0	66.94	74	-7.06	Peak
2483.5	28.70	319	100	H	33	5.6	0	67.30	74	-6.70	Peak
2483.5	14.88	176	100	V	33	5.6	0	53.48	54	-0.52	Ave
2483.5	14.48	319	100	H	33	5.6	0	53.08	54	-0.92	Ave
4924	42.42	0	100	V	35.4	11.07	35.43	53.46	74	-20.54	Peak
4924	42.77	0	100	H	35.4	11.07	35.43	53.81	74	-20.19	Peak
4924	30.58	0	100	V	35.4	11.07	35.43	41.62	54	-12.38	Ave
4924	30.91	0	100	H	35.4	11.07	35.43	41.95	54	-12.05	Ave
7386	43.68	360	169	V	36.1	12.73	35.9	56.61	74	-17.39	Peak
7386	44.17	106	178	H	36.1	12.73	35.9	57.10	74	-16.90	Peak
7386	31.24	360	169	V	36.1	12.73	35.9	44.17	54	-9.83	Ave
7386	31.83	106	178	H	36.1	12.73	35.9	44.76	54	-9.24	Ave

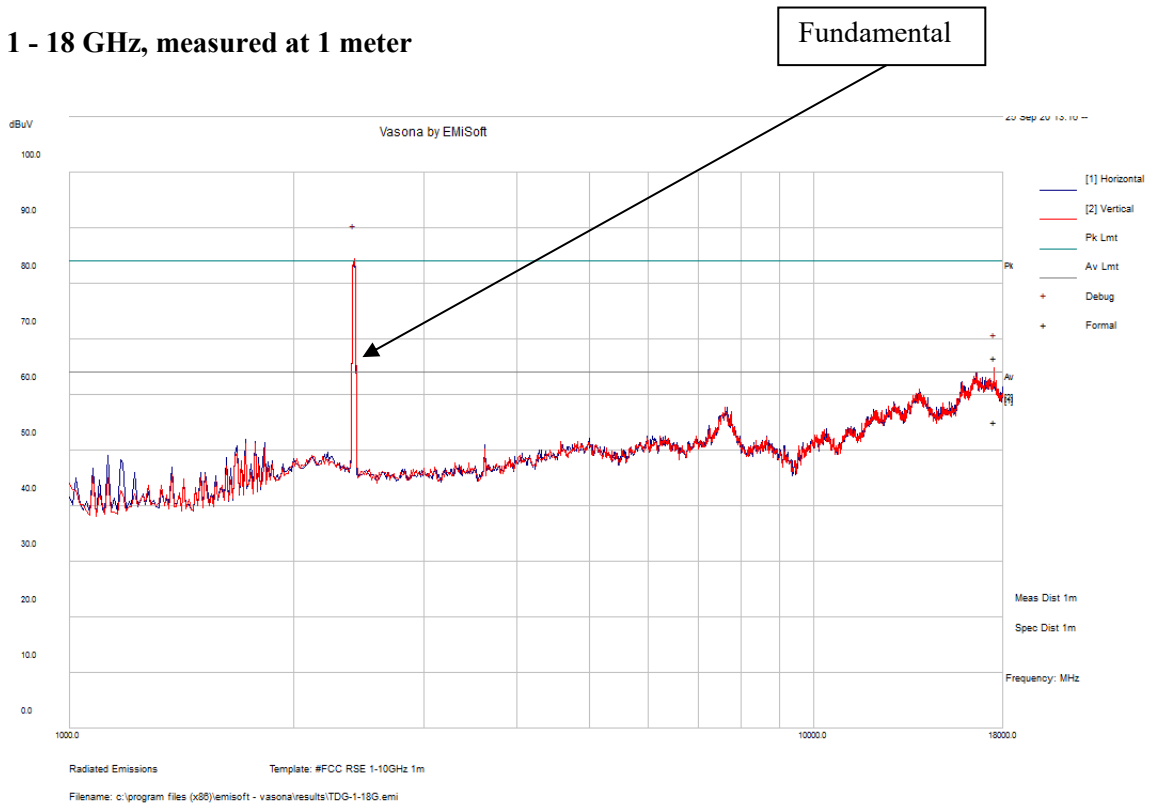
BLE

Freq. (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/ISED		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 2402MHz											
2402	64.34	88	152	V	32.6	5.59	0	102.53	-	-	Peak
2402	66.87	226	124	H	32.6	5.59	0	105.06	-	-	Peak
2402	59.29	88	152	V	32.6	5.59	0	97.48	-	-	Ave
2402	62.01	226	124	H	32.6	5.59	0	100.2	-	-	Ave
2390	44.66	88	152	V	32.6	5.59	36.34	46.51	74	-27.49	Peak
2390	45.57	226	124	H	32.6	5.59	36.34	47.42	74	-26.58	Peak
2390	34.05	88	152	V	32.6	5.59	36.34	35.90	54	-18.10	Ave
2390	33.72	226	124	H	32.6	5.59	36.34	35.57	54	-18.43	Ave
4804	44.08	60	144	V	35	9.89	35.43	53.54	74	-20.46	Peak
4804	43.13	0	100	H	35	9.89	35.43	52.59	74	-21.41	Peak
4804	32.85	60	144	V	35	9.89	35.43	42.31	54	-11.69	Ave
4804	31.43	0	100	H	35	9.89	35.43	40.89	54	-13.11	Ave
7206	43.58	109	150	V	36.1	9.83	35.82	53.69	74	-20.31	Peak
7206	43.39	0	100	H	36.1	9.83	35.82	53.50	74	-20.50	Peak
7206	32.76	109	150	V	36.1	9.83	35.82	42.87	54	-11.13	Ave
7206	32.07	0	100	H	36.1	9.83	35.82	42.18	54	-11.82	Ave
Middle Channel 2442MHz											
2442	64.5	179	152	V	32.8	5.59	0	102.89	-	-	Peak
2442	67	227	132	H	32.8	5.59	0	105.39	-	-	Peak
2442	59.84	179	152	V	32.8	5.59	0	98.23	-	-	Ave
2442	62.08	227	132	H	32.8	5.59	0	100.47	-	-	Ave
4884	44.78	66	151	V	35.2	10.96	35.43	55.51	74	-18.49	Peak
4884	43.69	0	100	H	35.2	10.96	35.43	54.42	74	-19.58	Peak
4884	32.68	66	151	V	35.2	10.96	35.43	43.41	54	-10.59	Ave
4884	31.55	0	100	H	35.2	10.96	35.43	42.28	54	-11.72	Ave
7326	43.66	114	147	V	36.1	10.95	35.82	54.89	74	-19.11	Peak
7326	42.79	0	100	H	36.1	10.95	35.82	54.02	74	-19.98	Peak
7326	32.47	114	147	V	36.1	10.95	35.82	43.7	54	-10.3	Ave
7326	31.37	0	100	H	36.1	10.95	35.82	42.6	54	-11.4	Ave

Freq. (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/ISED		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
High Channel 2480MHz											
2480	64.28	188	150	V	33	5.59	0	102.87	-	-	Peak
2480	65.79	230	124	H	33	5.59	0	104.38	-	-	Peak
2480	59.37	188	150	V	33	5.59	0	97.96	-	-	Ave
2480	61.28	230	124	H	33	5.59	0	99.87	-	-	Ave
2483.5	52.38	95	150	V	33	5.6	36.34	54.64	74	-19.36	Peak
2483.5	60.51	230	124	H	33	5.6	36.34	62.77	74	-11.23	Peak
2483.5	33.42	65	150	V	33	5.6	36.34	35.68	54	-18.32	Ave
2483.5	36.65	230	124	H	33	5.6	36.34	38.91	54	-15.09	Ave
4960	44.33	62	147	V	35.4	11.07	35.43	55.37	74	-18.63	Peak
4960	43.80	0	100	H	35.4	11.07	35.43	54.84	74	-19.16	Peak
4960	32.30	62	147	V	35.4	11.07	35.43	43.34	54	-10.66	Ave
4960	31.64	0	100	H	35.4	11.07	35.43	42.68	54	-11.32	Ave
7440	43.70	103	151	V	36.1	12.73	35.9	56.63	74	-17.37	Peak
7440	43.82	0	100	H	36.1	12.73	35.9	56.75	74	-17.25	Peak
7440	33.32	103	151	V	36.1	12.73	35.9	46.25	54	-7.75	Ave
7440	31.81	0	100	H	36.1	12.73	35.9	44.74	54	-9.26	Ave

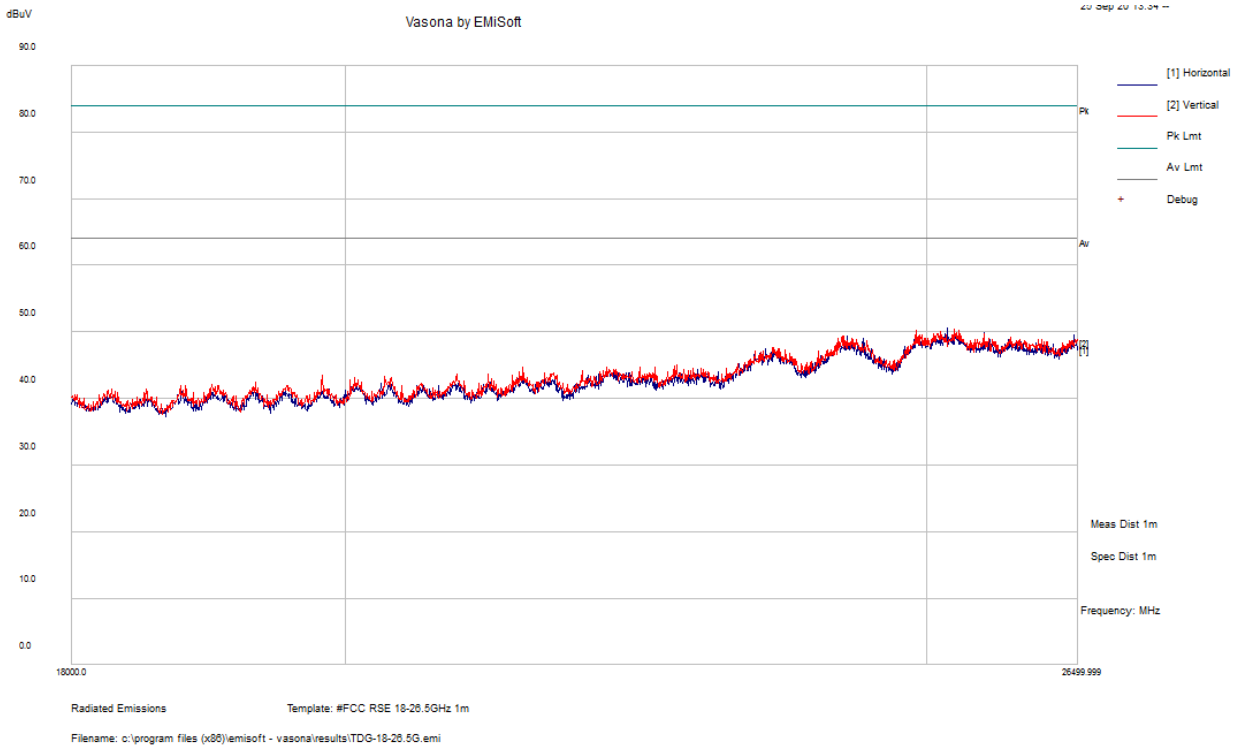
3) Above 1G Scans (Wi-Fi)

1 - 18 GHz, measured at 1 meter



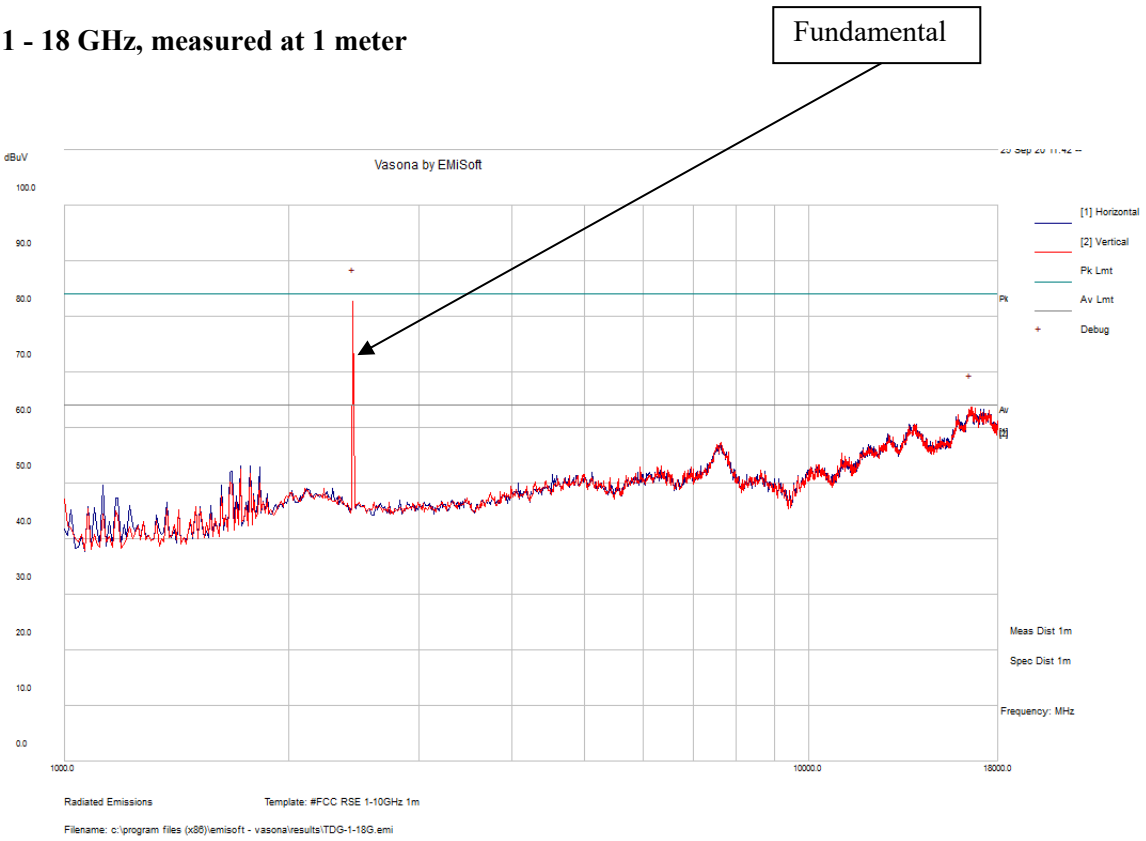
Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Comment
17510.375	66.61	149	V	139	84	-17.39	Peak
17510.375	55.05	149	V	139	64	-8.95	Average

18 GHz-26.5 GHz, measured at 1 meter

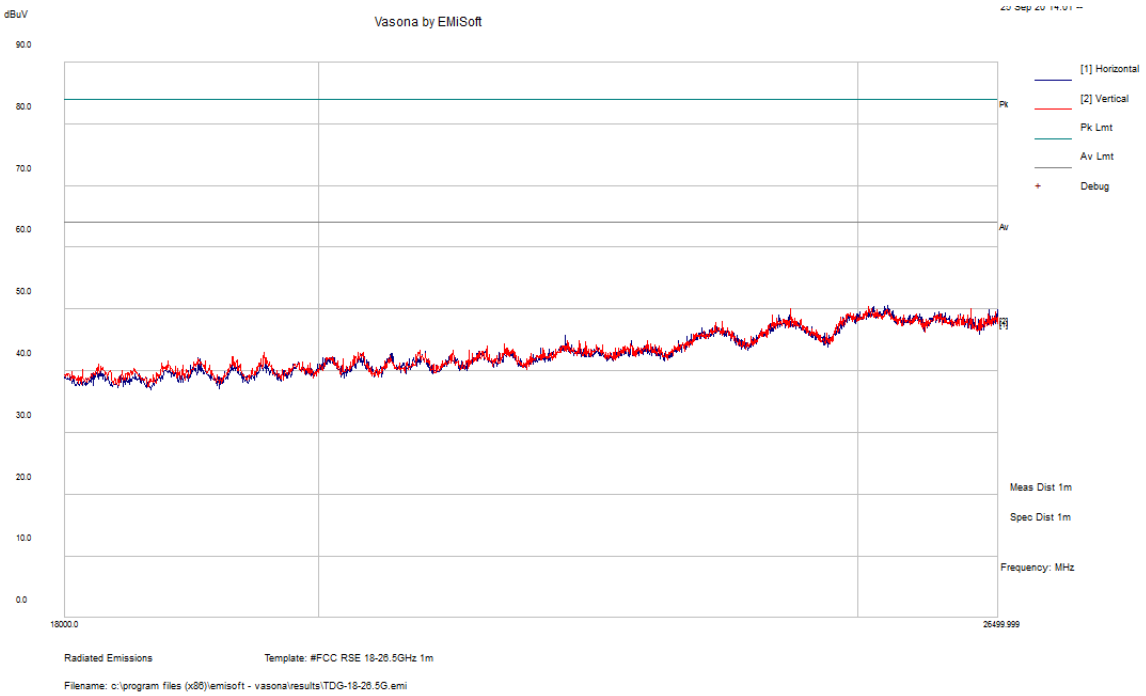


4) Above 1G Scans (BLE)

1 - 18 GHz, measured at 1 meter



18 GHz-26.5 GHz, measured at 1 meter



7 Annex A – Test Setup Photographs

Please refer to the attachment

8 Annex B- EUT External Photographs

Please refer to the attachment

9 Annex C- EUT Internal Photographs

Please refer to the attachment

10 Annex D (Normative) - ISO/IEC 17025 Certificate and Scope of Accreditation

Accredited Laboratory

A2LA has accredited

BAY AREA COMPLIANCE LABORATORIES CORP.

Sunnyvale, CA

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets A2LA R222 - *Specific Requirements EPA ENERGY STAR Accreditation Program*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 2nd day of October 2018.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3297.02
Valid to February 28, 2021
Revised December 04, 2020

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

Please follow the web link below for a full ISO 17025 scope

https://www.a2la.org/scopepdf/3297-02.pdf

--- END OF REPORT ---